```
? logon

*** It is now 2009/07/22 09:38:14 ***
 (Dialog time 2009/07/22 08:38:14)

Preferences:
1.  Default save option: [TEXT]
2.  Graphic Images.
      Maximum width in pixels : [624]
      Maximum height in pixels: [624]
3.  Hold output position (don't scroll to the output buffer end): [No]
4.  Command separators (add HR after every command): [No]
5.  Type separators (add HR after every record): [Yes]
6.  Linking Pane: [Right]
7.  Status location.
      Below Type ahead buffer : [No]
      In Browser status line: [No]
8.  Show Estimated Cost Summary: [Yes]
9. Highlight Search Terms: [Yes]
10. Display Detailed Results by Search Term: [Yes]
11. Show Results by File (multifile search): [Yes]
12. Display Postings: [No]
14. Expand Items: 25
15. Hold Expand output position (don't scroll to the output buffer end): [No]
16. KWIC Window: 50
17. Output Cost Notification: [No]
18. Prompt for Subaccount at Logon: [No]
19. Hide History Tab: [No]
20. Show Preferences at Login: [Yes]
21. Show hyphen(s) in display set command : [Yes]

SUPERBIO is set ON as an alias for 155 73 5 35 65
HILIGHT set on as ''  ''
DETAIL set on
KWIC is set to 50.

? b superbio

       22jul09 07:38:23 User294085 Session D209.1
            $0.00    0.249 DialUnits File415
     $0.00  Estimated cost File415
     $0.03  INTERNET
     $0.03  Estimated cost this search
     $0.03  Estimated total session cost   0.249 DialUnits

SYSTEM:OS  - DIALOG OneSearch
  File 155:MEDLINE(R) 1950-2009/Jul 20
         (c) format only 2009 Dialog
  File  73:EMBASE 1974-2009/Jul 20
         (c) 2009 Elsevier B.V.
*File  73: EMBASE Classic available to all Dialog customers.
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See HELP NEWS 772 for information.
  File   5:Biosis Previews(R) 1926-2009/Jul W2
         (c) 2009 The Thomson Corporation
  File  35:Dissertation Abs Online 1861-2009/Jun
         (c) 2009 ProQuest Info&Learning
  File  65:Inside Conferences 1993-2009/Jul 21
         (c) 2009 BLDSC all rts. reserv.

      Set  Items  Description
      ---  -----  -----------

? e au=kuroda, akio

Ref   File    Items   Total  Index-term
E1       5               1  AU=KURODA/TOKUBEI
E2      65             113  AU=KURODA, A.
E3  -------              0 *AU=KURODA, AKIO
E4      65              31  AU=KURODA, C.
E5      65               1  AU=KURODA, C. K.
E6      65               5  AU=KURODA, C. S.
E7      65               1  AU=KURODA, C.S.
E8      65              48  AU=KURODA, D.
E9      65               2  AU=KURODA, D. A.
E10     65               5  AU=KURODA, D. R.
E11     35               1  AU=KURODA, DANIEL GUSTAVO
E12     65              26  AU=KURODA, E.
E13     65               3  AU=KURODA, F.
E14     65               3  AU=KURODA, G.
E15     65             239  AU=KURODA, H.
E16     65               6  AU=KURODA, H. ET AL.
E17     35               1  AU=KURODA, HIROMOTO
E18     65             178  AU=KURODA, I.
E19     65              28  AU=KURODA, J.
E20     65               1  AU=KURODA, J.-I.
E21     65             556  AU=KURODA, K.
E22     65               1  AU=KURODA, K. ET AL.
E23     65               6  AU=KURODA, K.-I.
E24     65               1  AU=KURODA, K.O.
E25     35               1  AU=KURODA, KAZUO

Enter P or PAGE for more? s e2 and atp

155: MEDLINE(R)_1950-2009/Jul 20
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        118852  ATP
             0  AU='KURODA, A.' AND ATP

 73: EMBASE_1974-2009/Jul 20
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        100812  ATP
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 5: Biosis Previews(R)_1926-2009/Jul W2
              0  AU=KURODA, A.
         172759  ATP
              0  AU='KURODA, A.' AND ATP

35: Dissertation Abs Online_1861-2009/Jun
              0  AU=KURODA, A.
           7606  ATP
              0  AU='KURODA, A.' AND ATP

65: Inside Conferences_1993-2009/Jul 21
            113  AU=KURODA, A.
           1874  ATP
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TOTAL: FILES 155,73,5 and ...
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         401903  ATP
     S1       0  AU='KURODA, A.' AND ATP

>>> Retrying request [1]
? s ATP and ((adenylate (w) kinase) or adk) and ((polyphosphate (w) kinase) or ppk
or phosphotransferase or (diphosphate (w) kinase)) and amp and (polyphosphate or
phosphate)

Processing
155: MEDLINE(R)_1950-2009/Jul 20
          35980  ADENYLATE
         297288  KINASE
           2545  ADENYLATE(W)KINASE
            200  ADK
           2573  POLYPHOSPHATE
         297288  KINASE
            171  POLYPHOSPHATE(W)KINASE
            267  PPK
           6181  PHOSPHOTRANSFERASE
          49507  DIPHOSPHATE
         297288  KINASE
           1654  DIPHOSPHATE(W)KINASE
         102536  AMP
         118852  ATP
           2573  POLYPHOSPHATE
         169926  PHOSPHATE
             25  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

 73: EMBASE_1974-2009/Jul 20
          35708  ADENYLATE
         309524  KINASE
           2576  ADENYLATE(W)KINASE
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          169  ADK
         3017  POLYPHOSPHATE
       309524  KINASE
          150  POLYPHOSPHATE(W)KINASE
          249  PPK
        16431  PHOSPHOTRANSFERASE
        51182  DIPHOSPHATE
       309524  KINASE
         1261  DIPHOSPHATE(W)KINASE
       100812  ATP
       101248  AMP
         3017  POLYPHOSPHATE
       211034  PHOSPHATE
           31  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
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 5: Biosis Previews(R)_1926-2009/Jul W2
        39298  ADENYLATE
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          228  ADK
         4025  POLYPHOSPHATE
       380469  KINASE
          221  POLYPHOSPHATE(W)KINASE
          318  PPK
         7850  PHOSPHOTRANSFERASE
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         1151  DIPHOSPHATE(W)KINASE
       130447  AMP
         4025  POLYPHOSPHATE
       264491  PHOSPHATE
       172759  ATP
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               OR PHOSPHATE)

35: Dissertation Abs Online_1861-2009/Jun
         1364  ADENYLATE
        15594  KINASE
          121  ADENYLATE(W)KINASE
           39  ADK
          311  POLYPHOSPHATE
        15594  KINASE
           18  POLYPHOSPHATE(W)KINASE
           25  PPK
          434  PHOSPHOTRANSFERASE
          799  DIPHOSPHATE
        15594  KINASE
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            64  DIPHOSPHATE(W)KINASE
          7606  ATP
           311  POLYPHOSPHATE
         11923  PHOSPHATE
         23552  AMP
             1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
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                OR PHOSPHATE)

 65: Inside Conferences_1993-2009/Jul 21
           399  ADENYLATE
          7066  KINASE
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             5  PPK
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          7066  KINASE
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         30755  AMP
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TOTAL: FILES 155,73,5 and ...
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         10098  POLYPHOSPHATE
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           562  POLYPHOSPHATE(W)KINASE
           864  PPK
         30951  PHOSPHOTRANSFERASE
        120476  DIPHOSPHATE
       1009941  KINASE
          4153  DIPHOSPHATE(W)KINASE
        388538  AMP
         10098  POLYPHOSPHATE
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    S2      82  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
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                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
```

```
                OR PHOSPHATE)

? s s2 and (amplification or amplified or detect or detecting or detecting)

155: MEDLINE(R)_1950-2009/Jul 20
          25  S2
      159754  DETECT
       72109  AMPLIFICATION
       55773  AMPLIFIED
       77225  DETECTING
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              OR DETECTING)

 73: EMBASE_1974-2009/Jul 20
          31  S2
      140757  DETECT
       77358  AMPLIFICATION
       44897  AMPLIFIED
       66517  DETECTING
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  5: Biosis Previews(R)_1926-2009/Jul W2
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       69351  AMPLIFIED
      146437  DETECT
      104195  AMPLIFICATION
       76258  DETECTING
           1  S2 AND (AMPLIFICATION OR AMPLIFIED OR DETECT OR DETECTING
              OR DETECTING)

 35: Dissertation Abs Online_1861-2009/Jun
           1  S2
       19239  DETECT
        8804  DETECTING
        4600  AMPLIFIED
        5381  AMPLIFICATION
        8804  DETECTING
           0  S2 AND (AMPLIFICATION OR AMPLIFIED OR DETECT OR DETECTING
              OR DETECTING)

 65: Inside Conferences_1993-2009/Jul 21
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        5815  DETECTING
        3228  AMPLIFICATION
        1429  AMPLIFIED
        2657  DETECT
        5815  DETECTING
           0  S2 AND (AMPLIFICATION OR AMPLIFIED OR DETECT OR DETECTING
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                OR DETECTING)

TOTAL: FILES 155,73,5 and ...
            82  S2
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        176050  AMPLIFIED
        468844  DETECT
        234619  DETECTING
        234619  DETECTING
     S3       2  S2 AND (AMPLIFICATION OR AMPLIFIED OR DETECT OR DETECTING
                OR DETECTING)

? rd

     S4       1  RD  (unique items)

? t s4/3/all

Dialog eLink:
4/3/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)
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16003708   PMID: 15215583
ATP amplification for ultrasensitive bioluminescence assay: detection of a single
bacterial cell.

Satoh Tetsuya; Kato Junichi; Takiguchi Noboru; Ohtake Hisao; Kuroda Akio
Department of Molecular Biotechnology, Graduate School of Advanced Sciences of
Matter, Hiroshima University.
Bioscience, biotechnology, and biochemistry ( Japan )   Jun 2004 ,   68 (6) p1216-
20 ,  ISSN: 0916-8451--Print   Journal Code: 9205717
Publishing Model Print
Document type: Journal Article; Research Support, Non-U.S. Gov't
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed


? s s2 and assay

155: MEDLINE(R)_1950-2009/Jul 20
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        468217  ASSAY
             5  S2 AND ASSAY

 73: EMBASE_1974-2009/Jul 20
            31  S2
        439654  ASSAY
             4  S2 AND ASSAY

  5: Biosis Previews(R)_1926-2009/Jul W2
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             25  S2
         463471  ASSAY
              4  S2 AND ASSAY

 35: Dissertation Abs Online_1861-2009/Jun
              1  S2
          19931  ASSAY
              0  S2 AND ASSAY

 65: Inside Conferences_1993-2009/Jul 21
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              0  S2 AND ASSAY

TOTAL: FILES 155,73,5 and ...
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        1396825  ASSAY
     S5      13  S2 AND ASSAY

? rd

     S6       7  RD  (unique items)

? t s6/k/all

6/K/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)
(c) format only 2009 Dialog. All rights reserved.

ATP amplification for ultrasensitive bioluminescence assay: detection of a single
bacterial cell.

We developed an ultrasensitive bioluminescence assay of ATP by employing (i)
adenylate kinase (ADK) for converting AMP + ATP to two molecules of ADP, (ii)
polyphosphate (polyP) kinase (PPK) for converting ADP back to ATP ( ATP
amplification), and (iii) a commercially available firefly luciferase. A highly
purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels
of bioluminescence in the firefly luciferase reaction. The present method, which was
approximately 10,000-fold more sensitive to ATP than the conventional
bioluminescence assay, allowed us to detect bacterial contamination as low as one
colony-forming unit (CFU) of Escherichia coli per assay.  (
Descriptors: ; Adenylate Kinase; Bacteria--cytology--CY; Escherichia coli --
cytology--CY; Escherichia coli--isolation and purification--IP; Escherichia coli
Proteins; Luciferases; Luminescent Measurements--standards --ST; Phosphotransferases
(Alcohol Group Acceptor...
Named Person:
Enzyme No.: EC 1.13.12.- (Luciferases); EC 2.7.1.- (Phosphotransferases (Alcohol
Group Acceptor)); EC 2.7.4.1 (polyphosphate kinase, E coli) ; EC 2.7.4.3 (Adenylate
Kinase)
Chemical Name: Escherichia coli Proteins; Recombinant Fusion Proteins; Adenosine
Triphosphate; Luciferases; Phosphotransferases (Alcohol Group Acceptor);
polyphosphate kinase, E coli; Adenylate Kinase
```

6/K/2 (Item 2 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

The evidence for two opposite, ATP-generating and ATP -consuming, extracellular pathways on endothelial and lymphoid cells.

...1) ecto-nucleotidases, NTP diphosphohydrolase/CD39 (EC 3.6.1.5) and ecto-5'-nucleotidase/CD73 (EC 3.1.3.5); (2) ecto-nucleotide kinases, adenylate kinase (EC 2.7.4.3) and nucleoside diphosphate kinase (EC 2.7.4.6); (3) ecto-adenosine deaminase (EC 3.5.4.4). Evidence for this was obtained by using enzyme assays with (3)H-labelled nucleotides and adenosine as substrates, direct evaluation of gamma-phosphate transfer from [gamma-(32)P]ATP to AMP /NDP, and bioluminescent measurement of extracellular ATP synthesis. In addition, incorporation of radioactivity into an approx. 20 kDa surface protein was observed following incubation of Namalwa B cells with [gamma-(32)P]ATP. Thus two opposite, ATP-generating and ATP-consuming, pathways coexist on the cell surface, where basal ATP release, re-synthesis of high-energy phosphoryls, and selective ecto-protein phosphorylation are counteracted by stepwise nucleotide breakdown with subsequent adenosine inactivation. The comparative measurements of enzymic activities indicated the predominance of the nucleotide-inactivating pathway via ecto-nucleotidase reactions on the endothelial cells. The lymphocytes are characterized by counteracting ATP-regenerating/adenosine-eliminating phenotypes, thus allowing them to avoid the lymphotoxic effects of adenosine and maintain surrounding ATP at a steady-state level. These results are in agreement with divergent effects of ATP and adenosine on endothelial function and haemostasis, and provide a novel regulatory mechanism of local agonist availability for nucleotide- or nucleoside-selective receptors within the ... (
Descriptors: ; 5'-Nucleotidase--biosynthesis--BI; Adenosine--metabolism--ME; Adenosine Deaminase--chemistry--CH; Cell Membrane--metabolism--ME; Cells, Cultured; Endothelium, Vascular--cytology--CY; Enzyme-Linked Immunosorbent Assay; Flow Cytometry; Humans; Immunoblotting; Jurkat Cells; Kinetics; Lymphocytes--metabolism--ME; Models, Biological; Phosphorylation; Purines--metabolism--ME; Radioligand Assay; Time Factors; Tumor Cells, Cultured
Named Person:

6/K/3 (Item 3 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

Extracellular ATP formation on vascular endothelial cells is mediated by ecto-nucleotide kinase activities via phosphotransfer reactions.

Cell surface ecto-nucleotidases are considered the major effector system for inactivation of extracellular adenine nucleotides, whereas the alternative possibility of ATP synthesis has received little attention. Using a TLC assay, we investigated the main exchange activities of 3H-labeled adenine nucleotides on the cultured human umbilical vein endothelial cells. Stepwise nucleotide degradation to adenosine occurred when a particular nucleotide was present alone, whereas combined cell treatment with ATP and either [3H]AMP or [3H]ADP caused unexpected

phosphorylation of 3H-nucleotides via the backward reactions AMP --> ADP --> ATP. The following two groups of nucleotide-converting ecto-enzymes were identified based on inhibition and substrate specificity studies: 1) ecto-nucleotidases, ATP-diphosphohydrolase, and 5'-nucleotidase; 2) ecto-nucleotide kinases, adenylate kinase, and nucleoside diphosphate kinase. Ecto-nucleoside diphosphate kinase possessed the highest activity, as revealed by comparative kinetic analysis, and was capable of using both adenine and nonadenine nucleotides as phosphate donors and acceptors. The transphosphorylation mechanism was confirmed by direct transfer of the gamma-phosphate from [gamma-32P]ATP to AMP or nucleoside diphosphates and by measurement of extracellular ATP synthesis using luciferin-luciferase luminometry. The data demonstrate the coexistence of opposite, ATP-consuming and ATP-generating, pathways on the cell surface and provide a novel mechanism for regulating the duration and magnitude of purinergic signaling in the vasculature. (
Descriptors: *Adenosine Triphosphate--metabolism--ME; *Endothelium, Vascular--enzymology --EN; *Membrane Proteins--metabolism--ME; *Phosphates--metabolism--ME; *Phosphotransferases (Phosphate Group Acceptor)--metabolism--ME ; ...metabolism--ME; Adenosine--metabolism--ME; Adenosine Diphosphate --metabolism--ME; Adenosine Diphosphate--pharmacology--PD; Adenosine Monophosphate--metabolism--ME; Adenosine Monophosphate--pharmacology--PD; Adenosine Triphosphate--biosynthesis--BI; Adenylate Kinase --metabolism--ME; Apyrase--metabolism--ME; Cells, Cultured; Chromatography, Thin Layer; Dose-Response Relationship, Drug; Endothelium, Vascular --cytology--CY; Endothelium, Vascular--metabolism--ME; Humans; Kinetics; Luminescent Measurements; Nucleoside-Diphosphate Kinase --metabolism--ME; Phosphorylation--drug effects--DE; Substrate Specificity
Named Person:
Enzyme No.: EC 2.7.4.- (Phosphotransferases (Phosphate Group Acceptor)); EC 2.7.4.3 (Adenylate Kinase); EC 2.7.4.6 (Nucleoside- Diphosphate Kinase); EC 3.1.3.5 (5'-Nucleotidase); EC 3.6.1.5 (Apyrase)
Chemical Name: Membrane Proteins; Phosphates; Adenosine Triphosphate; Adenosine; Adenosine Diphosphate; Adenosine Monophosphate; Adenine; Phosphotransferases (Phosphate Group Acceptor); Adenylate Kinase; Nucleoside-Diphosphate Kinase; 5'-Nucleotidase; Apyrase

6/K/4 (Item 4 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

In vitro ATP regeneration from polyphosphate and AMP by polyphosphate:AMP phosphotransferase and adenylate kinase from Acinetobacter johnsonii 210A.

In vitro enzyme-based ATP regeneration systems are important for improving yields of ATP-dependent enzymatic reactions for preparative organic synthesis and biocatalysis. Several enzymatic ATP regeneration systems have been described but have some disadvantages. We report here on the use of polyphosphate:AMP phosphotransferase (PPT) from Acinetobacter johnsonii strain 210A in an ATP regeneration system based on the use of polyphosphate (polyP) and AMP as substrates. We have examined the substrate specificity of PPT and demonstrated ATP regeneration from AMP and polyP using firefly luciferase and hexokinase as model ATP -requiring enzymes. PPT catalyzes the reaction polyP(n) + AMP --> ADP + polyP(n-1). The ADP can be converted to ATP by adenylate kinase (AdK). Substrate specificity with nucleoside and 2'-deoxynucleoside monophosphates was examined using partially purified PPT by

measuring the formation of nucleoside diphosphates with high-pressure liquid chromatography. AMP and 2'-dAMP were efficiently phosphorylated to ADP and 2'-dADP, respectively. GMP, UMP, CMP, and IMP were not converted to the corresponding diphosphates at significant rates. Sufficient AdK and PPT activity in A. johnsonii 210A cell extract allowed demonstration of polyP-dependent ATP regeneration using a firefly luciferase-based ATP assay. Bioluminescence from the luciferase reaction, which normally decays very rapidly, was sustained in the presence of A. johnsonii 210A cell extract, MgCl(2), polyP(n=35), and AMP. Similar reaction mixtures containing strain 210A cell extract or partially purified PPT, polyP, AMP, glucose, and hexokinase formed glucose 6- phosphate. The results indicate that PPT from A. johnsonii is specific for AMP and 2'-dAMP and catalyzes a key reaction in the cell-free regeneration of ATP from AMP and polyP. The PPT/ AdK system provides an alternative to existing enzymatic ATP regeneration systems in which phosphoenolpyruvate and acetylphosphate serve as phosphoryl donors and has the advantage that AMP and polyP are stabile, inexpensive substrates. (
Descriptors: *Acinetobacter--enzymology--EN; *Adenosine Monophosphate--metabolism--ME; *Adenosine Triphosphate--metabolism--ME; *Adenylate Kinase --metabolism--ME; *Phosphotransferases (Phosphate Group Acceptor) --metabolism--ME; *Polyphosphates--metabolism--ME
Enzyme No.: EC 2.7.4.- (Phosphotransferases (Phosphate Group Acceptor)); EC 2.7.4.- (polyphosphate AMP phosphotransferase); EC 2.7.4.3 (Adenylate Kinase)
Chemical Name: Polyphosphates; Adenosine Triphosphate; Adenosine Monophosphate; Phosphotransferases (Phosphate Group Acceptor); polyphosphate AMP phosphotransferase; Adenylate Kinase

6/K/5 (Item 5 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

...NDK) of human platelets has been purified by chromatography on Blue Sepharose CL-6B gel (purification factor of 950) and shown to be free of adenylate kinase, ATPase and adenylate cyclase. The molecular weight was 70,000 with subunits of 17,000. The pH optimum was 8.0 Km values for ATP and dTDP were determined in two ways using the pyruvate kinase-lactate dehydrogenase coupled enzyme assay. Values of 0.38 and 0.20 mM were obtained for ATP and 0.29 and 0.21 mM for dTDP. Km values for ADP (0.024 mM) and GTP (0.12 mM) were determined with the hexokinase-glucose-6-phosphate dehydrogenase coupled enzyme assay. These values are in agreement with those reported for NDK from other sources. Theophylline, which inhibits the NDK activity of intact platelets and platelet membrane... (
Descriptors: *3',5'-Cyclic-AMP Phosphodiesterases--antagonists and inhibitors--AI ; *Blood Platelets--enzymology--EN; *Nucleoside-Diphosphate Kinase--blood--BL; *Phosphotransferases--blood--BL ; Adenosine Diphosphate--metabolism--ME; Adenosine Triphosphate--metabolism --ME; Blood Platelets--drug effects--DE; Guanosine Triphosphate--metabolism --ME; Humans; Hydrogen-Ion Concentration; Kinetics; Molecular Weight; Nucleoside-Diphosphate Kinase--antagonists and inhibitors--AI ; Nucleoside-Diphosphate Kinase--isolation and purification --IP; Papaverine--pharmacology--PD; Theophylline--pharmacology--PD; Thymine Nucleotides--metabolism--ME
Named Person:
Enzyme No.: EC 2.7.- (Phosphotransferases); EC 2.7.4.6 (Nucleoside- Diphosphate Kinase); EC 3.1.4.17 (3',5'-Cyclic-AMP Phosphodiesterases)

Chemical Name: Thymine Nucleotides; thymidine 5'-diphosphate; Adenosine Triphosphate; Theophylline; Adenosine Diphosphate; Papaverine; Guanosine Triphosphate; Phosphotransferases; Nucleoside-Diphosphate Kinase; 3',5'-Cyclic-AMP Phosphodiesterases

6/K/6 (Item 1 from file: 73)
DIALOG(R)File 73: EMBASE

Adenylate kinase (AKs) are ubiquitous monomeric phosphotransferases catalyzing the reversible reaction, AMP + MgATP = ADP + MgADP, which plays a pivotal role in the energetic metabolism. In vertebrates, six AK isoforms are known. In this work, we report the... ...those AK isozymes that follow the cited reaction, especially onto NC where bands are sharper due to the absence of protein diffusion. In contrast, GTP: AMP phosphotransferases are not detectable. AK activity from many sources can be detected in both its reaction courses; ATP production appears as dark-blue bands, while ADP formation appears as nonfluorescent bands over a fluorescent background, under long-wavelength UV light. We show that...
Drug Descriptors:
* adenylate kinase--endogenous compound--ec
adenosine diphosphate--endogenous compound--ec; adenosine triphosphate --endogenous compound--ec; isoenzyme--endogenous compound--ec; phosphotransferase--endogenous compound--ec; reactive oxygen metabolite--endogenous compound--ec
Medical Descriptors:
* enzyme assay; *polyacrylamide gel electrophoresis

Drug Terms (Uncontrolled): adenosine phosphate phosphotransferase--endogenous compound --ec; guanosine triphosphate phosphotransferase--endogenous compound --ec
Medical Terms (Uncontrolled):
CAS Registry Number: ...987-65-5 (adenosine triphosphate); 9013-02-9 (adenylate kinase); 9031-09-8... ...9031-44-1 (phosphotransferase)
SECTION HEADINGS:

6/K/7 (Item 1 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)

The participation of GTP-AMP-P transferase in substrate level phosphate transfer of rat liver mitochondria

Abstract: ...kinetic studies on the reaction sequence of substrate level phosphorylation in rat liver mitochondria, using anaerobic ketoglutarate dismutation in the presence of oligomycin and [p32] phosphate, phosphohistidine appears to be the first intermediate to be labelled, followed by GTP. [p32]ADP rather than [p32] ATP is shown to be the main product of the reaction. The phosphorylation of AMP requires ketoglutarate and is stimulated by 2,4-dinitrophenol. GTP-AMP-P transferase is localized in the mitochondria. This conclusion is based on enzymatic assays of fractionally extracted rat liver and of isolated mitochondria and microsomes. Mean

values for the activities of GTP- AMP-P transferase, nucleoside diphosphate kinase and succinic thiokinase in rat liver mitochondria are given and are compared with the rate of ketoglutarate oxidation. A possible function of GTP- AMP-P transferase for the phosphorylation of endo-genous AMP is discussed with regard to the compartmentation of nucleotides in the mitochondria. A new chromatographic assay for GTP-AMP-P transferase is reported, an assay which is not af-fected by nucleoside diphosphate kinase and adenylate kinase occurring in liver homogenates. An optical enzymatic assay for nucleoside di-phosphate kinase is also described. ABSTRACT
AUTHORS: Authors
Registry Numbers: ...ATP; ... ...adenylate kinase; ... ...AMP; ... ...nucleoside diphosphate kinase; ... ...phosphate
Enzyme Commission Number: ...adenylate kinase;
DESCRIPTORS:
 Chemicals & Biochemicals: ATP; ... ...adenylate kinase; ... ...di-phosphate; AMP; ... ...nucleoside diphosphate kinase; phosphate; ... ...nucleoside di-phosphate kinase

? s s2 and fusion

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155: MEDLINE(R)_1950-2009/Jul 20
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         168402  FUSION
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 73: EMBASE_1974-2009/Jul 20
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          97861  FUSION
              3  S2 AND FUSION

  5: Biosis Previews(R)_1926-2009/Jul W2
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         121382  FUSION
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 35: Dissertation Abs Online_1861-2009/Jun
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              0  S2 AND FUSION

 65: Inside Conferences_1993-2009/Jul 21
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         437475  FUSION
      S7      8  S2 AND FUSION

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S8 4 RD (unique items)

? t s8/k/all

8/K/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

ATP amplification for ultrasensitive bioluminescence assay: detection of a single bacterial cell.

We developed an ultrasensitive bioluminescence assay of ATP by employing (i) adenylate kinase (ADK) for converting AMP + ATP to two molecules of ADP, (ii) polyphosphate (polyP) kinase (PPK) for converting ADP back to ATP (ATP amplification), and (iii) a commercially available firefly luciferase. A highly purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels of bioluminescence in the firefly luciferase reaction. The present method, which was approximately 10,000-fold more sensitive to ATP than the conventional bioluminescence assay, allowed us to detect bacterial contamination as low as one colony-forming unit (CFU) of Escherichia coli per assay. (
Descriptors: ; Adenylate Kinase; Bacteria--cytology--CY; Escherichia coli --cytology--CY; Escherichia coli--isolation and purification--IP; Escherichia coli Proteins; Luciferases; Luminescent Measurements--standards --ST; Phosphotransferases (Alcohol Group Acceptor); Recombinant Fusion Proteins
Named Person:
Enzyme No.: EC 1.13.12.- (Luciferases); EC 2.7.1.- (Phosphotransferases (Alcohol Group Acceptor)); EC 2.7.4.1 (polyphosphate kinase, E coli) ; EC 2.7.4.3 (Adenylate Kinase)
Chemical Name: Escherichia coli Proteins; Recombinant Fusion Proteins; Adenosine Triphosphate; Luciferases; Phosphotransferases (Alcohol Group Acceptor); polyphosphate kinase, E coli; Adenylate Kinase

8/K/2 (Item 2 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

Nucleoside diphosphate kinase-like activity in adenylate kinase of Mycobacterium tuberculosis.

Ak (adenylate kinase) is a ubiquitous enzyme that catalyses a reversible high-energy phosphoryl-transfer reaction between ATP and AMP to form ADP. In the present study, the Ak gene (adk) of Mycobacterium tuberculosis was cloned, expressed in Escherichia coli and purified as a glutathione S-transferase fusion protein. Purified Ak converted AMP into ADP in the presence of [gamma-32P]ATP or [gamma-32P]GTP. Replacement of arginine-88 of adk with glycine resulted in the loss of enzymic activity. The purified protein also showed Ndk (nucleoside diphosphate kinase)-like activity as it transferred terminal phosphate from [gamma-32P]ATP to all nucleoside diphosphates, converting them into corresponding triphosphates. However, Ndk-like activity of Ak was not observed with [gamma-32P]GTP. Immunoblot analysis of various cellular fractions of M. tuberculosis H37Rv revealed that Ak is a cytoplasmic protein. The dual activity of Ak as both nucleoside mono- and di-phosphate kinases

suggested that this enzyme may have a role in RNA and DNA biosynthesis in addition to its role in intracellular nucleotide metabolism. (
Descriptors: *Adenylate Kinase--metabolism--ME; *Mycobacterium tuberculosis--enzymology--EN; *Nucleoside-Diphosphate Kinase --metabolism--ME ; Adenylate Kinase--genetics--GE; Adenylate Kinase--isolation and purification--IP; Amino Acid Sequence; Animals ; Arginine--chemistry--CH; Genetic Vectors; Molecular Sequence Data; Mycobacterium tuberculosis--chemistry--CH; Nucleoside-Diphosphate Kinase--genetics--GE; Nucleoside-Diphosphate Kinase --pharmacology--PD; Plasmids--genetics--GE
Named Person:
Enzyme No.: EC 2.7.4.3 (Adenylate Kinase); EC 2.7.4.6 (Nucleoside- Diphosphate Kinase)
Chemical Name: Arginine; Adenylate Kinase; Nucleoside-Diphosphate Kinase

8/K/3 (Item 3 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

The hepatitis B virus X protein is a potent AMP kinase.

The hepatitis B virus X-protein (HBx) has been expressed in Escherichia coli both as an unfused protein and with an N-terminal hexaHis-containing fusion sequence. Both forms of HBx, after purification, displayed a potent AMP kinase activity, in which HBx phosphorylates AMP to ADP, using ATP as the exclusive phosphate donor. We also found that HBx has previously unreported GTPase and GTP-ADP nucleoside diphosphate kinase activities. (
Descriptors: *Adenylate Kinase--analysis--AN; *Trans-Activators--analysis --AN
Enzyme No.: EC 2.7.4.3 (Adenylate Kinase); EC 3.6.1.- (GTP Phosphohydrolases)
Chemical Name: Trans-Activators; hepatitis B virus X protein; Adenylate Kinase; GTP Phosphohydrolases

8/K/4 (Item 1 from file: 73)
DIALOG(R)File 73: EMBASE

Adenylate kinase as a virulence factor of pseudomonas aeruginosa

Adenylate kinase (AK; ATP:AMP phosphotransferase, EC 2.7.4.3) is a ubiquitous enzyme that contributes to the homeostasis of adenine nucleotides in eukaryotic and prokaryotic cells. AK catalyzes the reversible reaction Mg . ATP + AMP (left right arrow) Mg . ADP + ADP. In this study we show that AK secreted by the pathogenic strains of Pseudomonas aeruginosa appears to play an... ...death. We purified and characterized AK from the growth medium of a cystic fibrosis isolate strain of P. aeruginosa 8821 and hyperproduced it as a fusion protein with glutathione S-transferase. We demonstrated enhanced macrophage cell death in the presence of both the secreted and recombinant purified AK and its substrates AMP plus ATP or ADP. These data suggested that AK converts its substrates to a mixture of AMP, ADP, and ATP, which are potentially more cytotoxic than ATP alone. In addition, we observed increased macrophage killing in the presence of AK and ATP alone. Since the presence of ATPase activity on the macrophages was confirmed in the present work, external

macrophage-effluxed ATP is converted to ADP, which in turn can be transformed by AK into a cytotoxic mixture of three adenine nucleotides. Evidence is presented in this... ...P. aeruginosa. Thus, the possible role of secreted AK as a virulence factor is in producing and keeping an intact pool of toxic mixtures of AMP, ADP, and ATP, which allows P. aeruginosa to exert its full virulence.
Drug Descriptors:
* adenylate kinase--endogenous compound--ec; *virulence factor --endogenous compound--ec
adenosine diphosphate--drug toxicity--to; adenosine phosphate--drug toxicity--to; adenosine triphosphate--drug toxicity--to; glutathione transferase; recombinant enzyme
Medical Descriptors:
CAS Registry Number: ...8063-98-7 (adenosine phosphate); 15237-44-2... ...987-65-5 (adenosine triphosphate); 9013-02-9 (adenylate kinase); 50812-37-8 (glutathione transferase)
SECTION HEADINGS:

? s (ppk (w) adk) or (adk (w) ppk)

? ds

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S4		1	RD (unique items)
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S8                 4   RD  (unique items)

? s (ppk (w) adk) or (adk (w) ppk)

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 73: EMBASE_1974-2009/Jul 20
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  5: Biosis Previews(R)_1926-2009/Jul W2
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 35: Dissertation Abs Online_1861-2009/Jun
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 65: Inside Conferences_1993-2009/Jul 21
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               5  PPK
              10  ADK
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               0  (PPK (W) ADK) OR (ADK (W) PPK)

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10/K/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)
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...of ADP, (ii) polyphosphate (polyP) kinase (PPK) for converting ADP back to ATP
(ATP amplification), and (iii) a commercially available firefly luciferase. A highly
purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels
of bioluminescence in the firefly luciferase reaction. The present method, which was
approximately 10,000-fold...  (


10/K/2 (Item 2 from file: 155)
DIALOG(R)File 155: MEDLINE(R)
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...been found to express a poly(P):AMP phosphotransferase activity by coupling with
adenylate kinase (ADK) in E. coli. The ATP-regeneration system consisting of ADK,
PPK, and poly(P) was shown to be promising for practical utilization of poly(P) as
```

ATP substitute. (

10/K/3 (Item 1 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)

Abstract: ...protein. Apyrase was immobilized on the surface of magnetic beads coated with polyurethane to provide Beads-apyrase to eliminate background caused by ADP bound to PPK-ADK. The exogenous ATP and microorganism were also detected by using ATP amplification reaction Coupled with bioluminescence assay. [Results] The purified fusion protein showed both ADK...

? t s10/3/all

Dialog eLink:
10/3/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

16003708 PMID: 15215583
ATP amplification for ultrasensitive bioluminescence assay: detection of a single bacterial cell.

Satoh Tetsuya; Kato Junichi; Takiguchi Noboru; Ohtake Hisao; Kuroda Akio
Department of Molecular Biotechnology, Graduate School of Advanced Sciences of Matter, Hiroshima University.
Bioscience, biotechnology, and biochemistry (Japan) Jun 2004 , 68 (6) p1216-20 , ISSN: 0916-8451--Print Journal Code: 9205717
Publishing Model Print
Document type: Journal Article; Research Support, Non-U.S. Gov't
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Dialog eLink:
10/3/2 (Item 2 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

13692848 PMID: 10739474
Inorganic polyphosphate and polyphosphate kinase: their novel biological functions and applications.

Shiba T; Tsutsumi K; Ishige K; Noguchi T
Division of Molecular Chemistry, Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan. shiba@dove-mc.eng.hokudai.ac.jp
Biochemistry. Biokhimii a (RUSSIA) Mar 2000 , 65 (3) p315-23 , ISSN: 0006-2979--Print Journal Code: 0376536

Publishing Model Print
Document type: Journal Article; Review
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Dialog eLink:
10/3/3 (Item 1 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)

0021071749 Biosis No.: 200900413186
Detection of low-level microorganism by concomitant use of ATP amplification and bioluminescence assay

Author: Chen Ying; Zou Bingjie; Zhu Shuhui; Ma Yinjiao; Zhou Guohua (Reprint)
Author Address: China Pharmaceut Univ, Sch Life Sci and Technol, Nanjing 210009, Peoples R China**Peoples R China
Author E-mail Address: chensiyu1123@163.com; ghzhou@nju.edu.cn
Journal: Weishengwu Xuebao 49 (6): p 826-830 JUN 4 2009 2009
ISSN: 0001-6209
Document Type: Article
Record Type: Abstract
Language: Chinese

? b medicine

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               $0.50  10 Type(s) in Format 95 (KWIC)
            $1.22  13 Types
     $4.77  Estimated cost File155
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            $0.90  2 Types
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               $2.44  1 Type(s) in Format  3
               $0.38  2 Type(s) in Format 95 (KWIC)
            $2.82  3 Types
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            $0.33    0.078 DialUnits File65
     $0.33  Estimated cost File65
            OneSearch, 5 files,  3.445 DialUnits FileOS
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    $33.34  Estimated cost this search
    $33.37  Estimated total session cost   3.694 DialUnits
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  File 138:Physical Education Index 1990-2009/Jul
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  File 144:Pascal 1973-2009/Jul W3
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  File 370:Science 1996-1999/Jul W3
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         (c) 2009 American Chemical Society
*File 399: Use is subject to the terms of your user/customer agreement.
IPCR/8 classification codes now searchable as IC=. See HELP NEWSIPCR.
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         (c) 2009 Mass. Med. Soc.
  File 457:The Lancet 1992-2009/Jul W2
         (c) 2009 Elsevier Limited.All rights res
  File 467:ExtraMED(tm) 2000/Dec
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      S2     267  RD  (unique items)

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or ppk or phosphotransferase or (diphosphate (w) kinase)) and amp and (polyphosphate
or phosphate)

Processing
Processing
Processing
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                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

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           311  POLYPHOSPHATE
         15594  KINASE
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         15594  KINASE
            64  DIPHOSPHATE(W)KINASE
          7606  ATP
           311  POLYPHOSPHATE
         11923  PHOSPHATE
         23552  AMP
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

45: EMCare_2009/Jul W2
             0  S2
           966  ADENYLATE
         21081  KINASE
           109  ADENYLATE(W)KINASE
             6  ADK
           122  POLYPHOSPHATE
         21081  KINASE
             2  POLYPHOSPHATE(W)KINASE
            13  PPK
          2861  PHOSPHOTRANSFERASE
          2883  DIPHOSPHATE
         21081  KINASE
            34  DIPHOSPHATE(W)KINASE
          3403  AMP
          4350  ATP
           122  POLYPHOSPHATE
         20018  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

65: Inside Conferences_1993-2009/Jul 21
             0  S2
           399  ADENYLATE
          7066  KINASE
            17  ADENYLATE(W)KINASE
            10  ADK
             5  PPK
           172  POLYPHOSPHATE
          7066  KINASE
             2  POLYPHOSPHATE(W)KINASE
            55  PHOSPHOTRANSFERASE
           194  DIPHOSPHATE
          7066  KINASE
            23  DIPHOSPHATE(W)KINASE
```

```
          1874  ATP
           172  POLYPHOSPHATE
          6198  PHOSPHATE
         30755  AMP
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

71: ELSEVIER BIOBASE_1994-2009/Jul W3
             0  S2
          6473  ADENYLATE
        153538  KINASE
           562  ADENYLATE(W)KINASE
           103  ADK
          1411  POLYPHOSPHATE
        153538  KINASE
           104  POLYPHOSPHATE(W)KINASE
           149  PPK
          2455  PHOSPHOTRANSFERASE
          5611  DIPHOSPHATE
        153538  KINASE
           526  DIPHOSPHATE(W)KINASE
         14712  AMP
          1411  POLYPHOSPHATE
         61784  PHOSPHATE
         49656  ATP
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

72: EMBASE_1993-2009/Jul 20
             0  S2
         17023  ADENYLATE
        264222  KINASE
          1539  ADENYLATE(W)KINASE
           125  ADK
          1907  POLYPHOSPHATE
        264222  KINASE
           124  POLYPHOSPHATE(W)KINASE
           215  PPK
         13547  PHOSPHOTRANSFERASE
         33339  DIPHOSPHATE
        264222  KINASE
          1056  DIPHOSPHATE(W)KINASE
         56453  AMP
         67348  ATP
          1907  POLYPHOSPHATE
        131116  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
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```
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

73: EMBASE_1974-2009/Jul 20
             0  S2
         35708  ADENYLATE
        309524  KINASE
          2576  ADENYLATE(W)KINASE
           169  ADK
          3017  POLYPHOSPHATE
        309524  KINASE
           150  POLYPHOSPHATE(W)KINASE
           249  PPK
         16431  PHOSPHOTRANSFERASE
         51182  DIPHOSPHATE
        309524  KINASE
          1261  DIPHOSPHATE(W)KINASE
        100812  ATP
        101248  AMP
          3017  POLYPHOSPHATE
        211034  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

91: MANTIS(TM)_1880-2009/Mar
             0  S2
            52  ADENYLATE
          1339  KINASE
             4  ADENYLATE(W)KINASE
             1  ADK
             7  POLYPHOSPHATE
          1339  KINASE
             0  POLYPHOSPHATE(W)KINASE
             2  PHOSPHOTRANSFERASE
             1  PPK
           191  DIPHOSPHATE
          1339  KINASE
             1  DIPHOSPHATE(W)KINASE
           173  AMP
           590  ATP
             7  POLYPHOSPHATE
          1028  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

98: General Sci Abs_1984-2009/Jul
            16  S2
           972  ADENYLATE
```

```
          16238  KINASE
            109  ADENYLATE(W)KINASE
             13  ADK
            193  POLYPHOSPHATE
          16238  KINASE
             34  POLYPHOSPHATE(W)KINASE
             20  PPK
            490  PHOSPHOTRANSFERASE
           1087  DIPHOSPHATE
          16238  KINASE
             62  DIPHOSPHATE(W)KINASE
           1891  AMP
            193  POLYPHOSPHATE
           7958  PHOSPHATE
           6757  ATP
              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

135: NewsRx Weekly Reports_1995-2009/Jul W1
              0  S2
           1021  ADENYLATE
          53899  KINASE
            129  ADENYLATE(W)KINASE
             44  ADK
            168  POLYPHOSPHATE
          53899  KINASE
             15  POLYPHOSPHATE(W)KINASE
             34  PPK
            321  PHOSPHOTRANSFERASE
           1392  DIPHOSPHATE
          53899  KINASE
             88  DIPHOSPHATE(W)KINASE
           3907  AMP
            168  POLYPHOSPHATE
          12485  PHOSPHATE
          11184  ATP
              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

138: Physical Education Index_1990-2009/Jul
              0  S2
              0  POLYPHOSPHATE
            727  KINASE
              0  POLYPHOSPHATE(W)KINASE
             11  DIPHOSPHATE
            727  KINASE
              0  DIPHOSPHATE(W)KINASE
              3  ADENYLATE
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          727  KINASE
            1  ADENYLATE(W)KINASE
            0  ADK
          146  AMP
          173  PHOSPHATE
          307  ATP
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

144: Pascal_1973-2009/Jul W3
            0  S2
        15117  ADENYLATE
       111316  KINASE
          906  ADENYLATE(W)KINASE
          115  ADK
         3481  POLYPHOSPHATE
       111316  KINASE
           95  POLYPHOSPHATE(W)KINASE
          157  PPK
         2905  PHOSPHOTRANSFERASE
        10921  DIPHOSPHATE
       111316  KINASE
          359  DIPHOSPHATE(W)KINASE
        38354  AMP
        57665  ATP
         3481  POLYPHOSPHATE
       128357  PHOSPHATE
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

149: TGG Health&Wellness DB(SM)_1976-2009/Jun W3
            2  S2
          800  ADENYLATE
        16523  KINASE
           69  ADENYLATE(W)KINASE
           38  ADK
           82  POLYPHOSPHATE
        16523  KINASE
            8  POLYPHOSPHATE(W)KINASE
           17  PPK
          241  PHOSPHOTRANSFERASE
         1086  DIPHOSPHATE
        16523  KINASE
           32  DIPHOSPHATE(W)KINASE
         2487  AMP
         4879  ATP
           82  POLYPHOSPHATE
        11510  PHOSPHATE
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              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

154: MEDLINE(R)_1990-2009/Jul 20
              0  S2
          18484  ADENYLATE
         256263  KINASE
           1289  ADENYLATE(W)KINASE
            161  ADK
           1821  POLYPHOSPHATE
         256263  KINASE
            154  POLYPHOSPHATE(W)KINASE
            238  PPK
           3804  PHOSPHOTRANSFERASE
          28168  DIPHOSPHATE
         256263  KINASE
           1458  DIPHOSPHATE(W)KINASE
          59401  AMP
          85398  ATP
           1821  POLYPHOSPHATE
         106233  PHOSPHATE
              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

155: MEDLINE(R)_1950-2009/Jul 20
              0  S2
          35980  ADENYLATE
         297288  KINASE
           2545  ADENYLATE(W)KINASE
            200  ADK
           2573  POLYPHOSPHATE
         297288  KINASE
            171  POLYPHOSPHATE(W)KINASE
            267  PPK
           6181  PHOSPHOTRANSFERASE
          49507  DIPHOSPHATE
         297288  KINASE
           1654  DIPHOSPHATE(W)KINASE
         102536  AMP
         118852  ATP
           2573  POLYPHOSPHATE
         169926  PHOSPHATE
              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

156: ToxFile_1965-2009/Jul W3
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              0  S2
           6841  ADENYLATE
          67811  KINASE
            292  ADENYLATE(W)KINASE
             34  ADK
            541  POLYPHOSPHATE
          67811  KINASE
             33  POLYPHOSPHATE(W)KINASE
             40  PPK
           1111  PHOSPHOTRANSFERASE
           9155  DIPHOSPHATE
          67811  KINASE
            198  DIPHOSPHATE(W)KINASE
          19527  AMP
          22854  ATP
            541  POLYPHOSPHATE
          39141  PHOSPHATE
              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

159: Cancerlit_1975-2002/Oct
              0  S2
           4312  ADENYLATE
          61962  KINASE
            149  ADENYLATE(W)KINASE
             37  ADK
            232  POLYPHOSPHATE
          61962  KINASE
              1  POLYPHOSPHATE(W)KINASE
             21  PPK
            764  PHOSPHOTRANSFERASE
           4518  DIPHOSPHATE
          61962  KINASE
            277  DIPHOSPHATE(W)KINASE
          11808  ATP
            232  POLYPHOSPHATE
          15554  PHOSPHATE
          14528  AMP
              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

162: Global Health_1983-2009/Jul W3
              0  S2
            797  ADENYLATE
           9876  KINASE
             92  ADENYLATE(W)KINASE
             23  ADK
            228  POLYPHOSPHATE
```

```
          9876  KINASE
             8  POLYPHOSPHATE(W)KINASE
            16  PPK
           277  PHOSPHOTRANSFERASE
          1306  DIPHOSPHATE
          9876  KINASE
            27  DIPHOSPHATE(W)KINASE
          6415  AMP
          4912  ATP
           228  POLYPHOSPHATE
         14888  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

164: Allied & Complementary Medicine_1984-2009/Jul
             0  S2
             0  PPK
             1  POLYPHOSPHATE
           435  KINASE
             0  POLYPHOSPHATE(W)KINASE
            27  DIPHOSPHATE
           435  KINASE
             0  DIPHOSPHATE(W)KINASE
             9  ADENYLATE
           435  KINASE
             0  ADENYLATE(W)KINASE
             1  ADK
            41  AMP
           123  ATP
             1  POLYPHOSPHATE
           221  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

172: EMBASE Alert_2009/Jul 21
             0  S2
           143  ADENYLATE
          7289  KINASE
            20  ADENYLATE(W)KINASE
             7  ADK
            42  POLYPHOSPHATE
          7289  KINASE
             3  POLYPHOSPHATE(W)KINASE
             6  PPK
            39  PHOSPHOTRANSFERASE
           274  DIPHOSPHATE
          7289  KINASE
            15  DIPHOSPHATE(W)KINASE
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```
          569  AMP
         1787  ATP
           42  POLYPHOSPHATE
         2415  PHOSPHATE
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

266: FEDRIP_2009/May
            0  S2
            3  ADENYLATE
          112  KINASE
            0  ADENYLATE(W)KINASE
            0  ADK
            1  PPK
            4  POLYPHOSPHATE
          112  KINASE
            0  POLYPHOSPHATE(W)KINASE
            5  DIPHOSPHATE
          112  KINASE
            0  DIPHOSPHATE(W)KINASE
           12  AMP
           72  ATP
            4  POLYPHOSPHATE
          110  PHOSPHATE
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

369: New Scientist_1994-2009/Jul W2
            0  S2
            1  ADENYLATE
           47  KINASE
            1  ADENYLATE(W)KINASE
            0  ADK
            1  PPK
            2  POLYPHOSPHATE
           47  KINASE
            0  POLYPHOSPHATE(W)KINASE
            1  PHOSPHOTRANSFERASE
            9  DIPHOSPHATE
           47  KINASE
            0  DIPHOSPHATE(W)KINASE
           42  AMP
           81  ATP
            2  POLYPHOSPHATE
          181  PHOSPHATE
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
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```
                OR PHOSPHATE)

370: Science_1996-1999/Jul W3
             0  S2
            24  ADENYLATE
           681  KINASE
             3  ADENYLATE(W)KINASE
             1  ADK
             0  PPK
             7  POLYPHOSPHATE
           681  KINASE
             2  POLYPHOSPHATE(W)KINASE
            23  PHOSPHOTRANSFERASE
           116  DIPHOSPHATE
           681  KINASE
             0  DIPHOSPHATE(W)KINASE
           105  AMP
             7  POLYPHOSPHATE
           786  PHOSPHATE
           296  ATP
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

399: CA SEARCH(R)_1967-2009/UD=15104
           249  S2
         27328  ADENYLATE
        210467  KINASE
          1382  ADENYLATE(W)KINASE
           460  ADK
           152  PPK
         11112  POLYPHOSPHATE
        210467  KINASE
           196  POLYPHOSPHATE(W)KINASE
          3830  PHOSPHOTRANSFERASE
         13929  DIPHOSPHATE
        210467  KINASE
           809  DIPHOSPHATE(W)KINASE
         29196  AMP(ADENOSINE 5'-MONOPHOSPHATE)
         59309  ATP(ADENOSINE 5'-TRIPHOSPHATE)
         11112  POLYPHOSPHATE
        328993  PHOSPHATE
             1  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
             0  S2
         14639  ADENYLATE
         41267  KINASE
```

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          468  ADENYLATE(W)KINASE
            8  ADK
            2  PPK
          826  POLYPHOSPHATE
        41267  KINASE
           12  POLYPHOSPHATE(W)KINASE
         1453  PHOSPHOTRANSFERASE
         2580  DIPHOSPHATE
        41267  KINASE
           60  DIPHOSPHATE(W)KINASE
        16708  AMP
        12484  ATP
          826  POLYPHOSPHATE
        35825  PHOSPHATE
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

444: New England Journal of Med._1985-2009/Jul W2
            0  S2
          144  ADENYLATE
         1681  KINASE
            1  ADENYLATE(W)KINASE
            4  ADK
            1  PPK
            1  POLYPHOSPHATE
         1681  KINASE
            0  POLYPHOSPHATE(W)KINASE
           14  PHOSPHOTRANSFERASE
          190  DIPHOSPHATE
         1681  KINASE
            3  DIPHOSPHATE(W)KINASE
          323  AMP
          354  ATP
            1  POLYPHOSPHATE
         1276  PHOSPHATE
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

457: The Lancet_1992-2009/Jul W2
            0  S2
            0  PPK
            3  POLYPHOSPHATE
         1214  KINASE
            0  POLYPHOSPHATE(W)KINASE
            5  PHOSPHOTRANSFERASE
           58  DIPHOSPHATE
         1214  KINASE
            0  DIPHOSPHATE(W)KINASE
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              41  ADENYLATE
            1214  KINASE
               5  ADENYLATE(W)KINASE
               6  ADK
             125  AMP
             358  ATP
               3  POLYPHOSPHATE
             604  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

467: ExtraMED(tm)_2000/Dec
               0  S2
               9  ADENYLATE
              47  KINASE
               0  ADENYLATE(W)KINASE
               0  ADK
               1  PHOSPHOTRANSFERASE
               8  DIPHOSPHATE
              47  KINASE
               0  DIPHOSPHATE(W)KINASE
              18  AMP
              36  ATP
             113  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

TOTAL: FILES 5,34,35 and ...
             267  S2
          921345  ATP
          269730  ADENYLATE
         2705877  KINASE
           17163  ADENYLATE(W)KINASE
            2039  ADK
           36619  POLYPHOSPHATE
         2705877  KINASE
            1525  POLYPHOSPHATE(W)KINASE
            2247  PPK
           70514  PHOSPHOTRANSFERASE
          252752  DIPHOSPHATE
         2705877  KINASE
           11184  DIPHOSPHATE(W)KINASE
          702191  AMP
           36619  POLYPHOSPHATE
         1767826  PHOSPHATE
      S3        1  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
```

OR PHOSPHATE)

? t s3/3/all

3/3/1 (Item 1 from file: 399)
DIALOG(R)File 399: CA SEARCH(R)

135119262 CA: 135(9)119262h PATENT
In vitro ATP regeneration system from polyphosphate and AMP by polyphosphate synthase and polyphosphate:AMP phosphotransferase or adenylate kinase
Inventor (Author): Ohtake, Hisao; Kuroda, Akio; Tanaka, Shotaro
Location: Japan,
Assignee: Satake Corporation
Patent: PCT International ; WO 200153513 A1 Date: 20010726
Application: WO 2001JP238 (20010117) *JP 20007332 (20000117) *JP 200028976 (20000207) *JP 2000112790 (20000414) *JP 2000119798 (20000420) *JP 2000362340 (20001129)
Pages: 51 pp.
CODEN: PIXXD2
Language: Japanese
Patent Classifications:
Class: C12P-019/32; C12Q-001/48; C12Q-001/66; C12Q-001/68
Designated Countries: CN; US
Designated Regional: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; TR

? s s3 and fusion

5: Biosis Previews(R)_1926-2009/Jul W2
0 S3
121382 FUSION
0 S3 AND FUSION

34: SciSearch(R) Cited Ref Sci_1990-2009/Jul W2
0 S3
156516 FUSION
0 S3 AND FUSION

35: Dissertation Abs Online_1861-2009/Jun
0 S3
12704 FUSION
0 S3 AND FUSION

45: EMCare_2009/Jul W2
0 S3
10849 FUSION
0 S3 AND FUSION

65: Inside Conferences_1993-2009/Jul 21

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             0  S3
         37126  FUSION
             0  S3 AND FUSION

 71: ELSEVIER BIOBASE_1994-2009/Jul W3
             0  S3
         51549  FUSION
             0  S3 AND FUSION

 72: EMBASE_1993-2009/Jul 20
             0  S3
         74919  FUSION
             0  S3 AND FUSION

 73: EMBASE_1974-2009/Jul 20
             0  S3
         97861  FUSION
             0  S3 AND FUSION

 91: MANTIS(TM)_1880-2009/Mar
             0  S3
          4898  FUSION
             0  S3 AND FUSION

 98: General Sci Abs_1984-2009/Jul
             0  S3
          6224  FUSION
             0  S3 AND FUSION

135: NewsRx Weekly Reports_1995-2009/Jul W1
             0  S3
         15864  FUSION
             0  S3 AND FUSION

138: Physical Education Index_1990-2009/Jul
             0  S3
           105  FUSION
             0  S3 AND FUSION

144: Pascal_1973-2009/Jul W3
             0  S3
        136596  FUSION
             0  S3 AND FUSION

149: TGG Health&Wellness DB(SM)_1976-2009/Jun W3
             0  S3
          8656  FUSION
             0  S3 AND FUSION

154: MEDLINE(R)_1990-2009/Jul 20
             0  S3
        145114  FUSION
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                0  S3 AND FUSION

155: MEDLINE(R)_1950-2009/Jul 20
                0  S3
           168402  FUSION
                0  S3 AND FUSION

156: ToxFile_1965-2009/Jul W3
                0  S3
            28232  FUSION
                0  S3 AND FUSION

159: Cancerlit_1975-2002/Oct
                0  S3
            29715  FUSION
                0  S3 AND FUSION

162: Global Health_1983-2009/Jul W3
                0  S3
             5133  FUSION
                0  S3 AND FUSION

164: Allied & Complementary Medicine_1984-2009/Jul
                0  S3
              675  FUSION
                0  S3 AND FUSION

172: EMBASE Alert_2009/Jul 21
                0  S3
             2271  FUSION
                0  S3 AND FUSION

266: FEDRIP_2009/May
                0  S3
              227  FUSION
                0  S3 AND FUSION

369: New Scientist_1994-2009/Jul W2
                0  S3
              485  FUSION
                0  S3 AND FUSION

370: Science_1996-1999/Jul W3
                0  S3
              620  FUSION
                0  S3 AND FUSION

399: CA SEARCH(R)_1967-2009/UD=15104
                1  S3
           186395  FUSION(SEE ?IGNOTE)
                0  S3 AND FUSION
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434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
                0  S3
            22031  FUSION
                0  S3 AND FUSION

444: New England Journal of Med._1985-2009/Jul W2
                0  S3
              572  FUSION
                0  S3 AND FUSION

457: The Lancet_1992-2009/Jul W2
                0  S3
              601  FUSION
                0  S3 AND FUSION

467: ExtraMED(tm)_2000/Dec
                0  S3
               66  FUSION
                0  S3 AND FUSION

TOTAL: FILES 5,34,35 and ...
                1  S3
          1325788  FUSION
      S4        0  S3 AND FUSION

>>> Retrying request [1]
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Set   File     Items   Description
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98         16
      135          0
      138          0
      144          0
      149          2
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
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      370          0
      399        283
      434          0
      444          0
      457          0
      467          0
S1                301   AU='KURODA, AKIO'
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98         16
      135          0
      138          0
      144          0
      149          2
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399        249
      434          0
      444          0
      457          0
      467          0
S2                267   RD  (unique items)
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98          0
      135          0
      138          0
      144          0
      149          0
      154          0
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      155         0
      156         0
      159         0
      162         0
      164         0
      172         0
      266         0
      369         0
      370         0
      399         1
      434         0
      444         0
      457         0
      467         0
S3                1   S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND (-
                  (POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE -
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE -
                  OR PHOSPHATE)
        5         0
       34         0
       35         0
       45         0
       65         0
       71         0
       72         0
       73         0
       91         0
       98         0
      135         0
      138         0
      144         0
      149         0
      154         0
      155         0
      156         0
      159         0
      162         0
      164         0
      172         0
      266         0
      369         0
      370         0
      399         0
      434         0
      444         0
      457         0
      467         0
S4                0   S3 AND FUSION

? s ATP and ((adenylate (w) kinase) or adk) and ((polyphosphate (w) kinase) or ppk
or phosphotransferase or (diphosphate (w) kinase)) and amp and (polyphosphate or
phosphate)
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Processing
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Processing
  5: Biosis Previews(R)_1926-2009/Jul W2
          39298  ADENYLATE
         380469  KINASE
           3058  ADENYLATE(W)KINASE
            228  ADK
           4025  POLYPHOSPHATE
         380469  KINASE
            221  POLYPHOSPHATE(W)KINASE
            318  PPK
           7850  PHOSPHOTRANSFERASE
          18794  DIPHOSPHATE
         380469  KINASE
           1151  DIPHOSPHATE(W)KINASE
         130447  AMP
           4025  POLYPHOSPHATE
         264491  PHOSPHATE
         172759  ATP
             25  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

 34: SciSearch(R) Cited Ref Sci_1990-2009/Jul W2
          41779  ADENYLATE
         397901  KINASE
           1716  ADENYLATE(W)KINASE
            206  ADK
           4330  POLYPHOSPHATE
         397901  KINASE
            172  POLYPHOSPHATE(W)KINASE
            299  PPK
           5419  PHOSPHOTRANSFERASE
          15412  DIPHOSPHATE
         397901  KINASE
           2026  DIPHOSPHATE(W)KINASE
          45117  AMP
         116834  ATP
           4330  POLYPHOSPHATE
         183485  PHOSPHATE
             23  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

 35: Dissertation Abs Online_1861-2009/Jun
           1364  ADENYLATE
          15594  KINASE
            121  ADENYLATE(W)KINASE
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            39  ADK
           311  POLYPHOSPHATE
         15594  KINASE
            18  POLYPHOSPHATE(W)KINASE
            25  PPK
           434  PHOSPHOTRANSFERASE
           799  DIPHOSPHATE
         15594  KINASE
            64  DIPHOSPHATE(W)KINASE
          7606  ATP
           311  POLYPHOSPHATE
         11923  PHOSPHATE
         23552  AMP
             1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

45: EMCare_2009/Jul W2
           966  ADENYLATE
         21081  KINASE
           109  ADENYLATE(W)KINASE
             6  ADK
           122  POLYPHOSPHATE
         21081  KINASE
             2  POLYPHOSPHATE(W)KINASE
            13  PPK
          2861  PHOSPHOTRANSFERASE
          2883  DIPHOSPHATE
         21081  KINASE
            34  DIPHOSPHATE(W)KINASE
          3403  AMP
          4350  ATP
           122  POLYPHOSPHATE
         20018  PHOSPHATE
             1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

65: Inside Conferences_1993-2009/Jul 21
           399  ADENYLATE
          7066  KINASE
            17  ADENYLATE(W)KINASE
            10  ADK
             5  PPK
           172  POLYPHOSPHATE
          7066  KINASE
             2  POLYPHOSPHATE(W)KINASE
            55  PHOSPHOTRANSFERASE
           194  DIPHOSPHATE
          7066  KINASE
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           23  DIPHOSPHATE(W)KINASE
         1874  ATP
          172  POLYPHOSPHATE
         6198  PHOSPHATE
        30755  AMP
            0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

71: ELSEVIER BIOBASE_1994-2009/Jul W3
         6473  ADENYLATE
       153538  KINASE
          562  ADENYLATE(W)KINASE
          103  ADK
         1411  POLYPHOSPHATE
       153538  KINASE
          104  POLYPHOSPHATE(W)KINASE
          149  PPK
         2455  PHOSPHOTRANSFERASE
         5611  DIPHOSPHATE
       153538  KINASE
          526  DIPHOSPHATE(W)KINASE
        14712  AMP
         1411  POLYPHOSPHATE
        61784  PHOSPHATE
        49656  ATP
            9  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

72: EMBASE_1993-2009/Jul 20
        17023  ADENYLATE
       264222  KINASE
         1539  ADENYLATE(W)KINASE
          125  ADK
         1907  POLYPHOSPHATE
       264222  KINASE
          124  POLYPHOSPHATE(W)KINASE
          215  PPK
        13547  PHOSPHOTRANSFERASE
        33339  DIPHOSPHATE
       264222  KINASE
         1056  DIPHOSPHATE(W)KINASE
        56453  AMP
        67348  ATP
         1907  POLYPHOSPHATE
       131116  PHOSPHATE
           26  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
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                OR PHOSPHATE)

73: EMBASE_1974-2009/Jul 20
         35708  ADENYLATE
        309524  KINASE
          2576  ADENYLATE(W)KINASE
           169  ADK
          3017  POLYPHOSPHATE
        309524  KINASE
           150  POLYPHOSPHATE(W)KINASE
           249  PPK
         16431  PHOSPHOTRANSFERASE
         51182  DIPHOSPHATE
        309524  KINASE
          1261  DIPHOSPHATE(W)KINASE
        100812  ATP
        101248  AMP
          3017  POLYPHOSPHATE
        211034  PHOSPHATE
            31  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

91: MANTIS(TM)_1880-2009/Mar
            52  ADENYLATE
          1339  KINASE
             4  ADENYLATE(W)KINASE
             1  ADK
             7  POLYPHOSPHATE
          1339  KINASE
             0  POLYPHOSPHATE(W)KINASE
             2  PHOSPHOTRANSFERASE
             1  PPK
           191  DIPHOSPHATE
          1339  KINASE
             1  DIPHOSPHATE(W)KINASE
           173  AMP
           590  ATP
             7  POLYPHOSPHATE
          1028  PHOSPHATE
             0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

98: General Sci Abs_1984-2009/Jul
           972  ADENYLATE
         16238  KINASE
           109  ADENYLATE(W)KINASE
            13  ADK
           193  POLYPHOSPHATE
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         16238  KINASE
            34  POLYPHOSPHATE(W)KINASE
            20  PPK
           490  PHOSPHOTRANSFERASE
          1087  DIPHOSPHATE
         16238  KINASE
            62  DIPHOSPHATE(W)KINASE
          1891  AMP
           193  POLYPHOSPHATE
          7958  PHOSPHATE
          6757  ATP
             1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

135: NewsRx Weekly Reports_1995-2009/Jul W1
          1021  ADENYLATE
         53899  KINASE
           129  ADENYLATE(W)KINASE
            44  ADK
           168  POLYPHOSPHATE
         53899  KINASE
            15  POLYPHOSPHATE(W)KINASE
            34  PPK
           321  PHOSPHOTRANSFERASE
          1392  DIPHOSPHATE
         53899  KINASE
            88  DIPHOSPHATE(W)KINASE
          3907  AMP
           168  POLYPHOSPHATE
         12485  PHOSPHATE
         11184  ATP
             1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

138: Physical Education Index_1990-2009/Jul
             0  POLYPHOSPHATE
           727  KINASE
             0  POLYPHOSPHATE(W)KINASE
            11  DIPHOSPHATE
           727  KINASE
             0  DIPHOSPHATE(W)KINASE
             3  ADENYLATE
           727  KINASE
             1  ADENYLATE(W)KINASE
             0  ADK
           146  AMP
           173  PHOSPHATE
           307  ATP
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             0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

144: Pascal_1973-2009/Jul W3
         15117  ADENYLATE
        111316  KINASE
           906  ADENYLATE(W)KINASE
           115  ADK
          3481  POLYPHOSPHATE
        111316  KINASE
            95  POLYPHOSPHATE(W)KINASE
           157  PPK
          2905  PHOSPHOTRANSFERASE
         10921  DIPHOSPHATE
        111316  KINASE
           359  DIPHOSPHATE(W)KINASE
         38354  AMP
         57665  ATP
          3481  POLYPHOSPHATE
        128357  PHOSPHATE
            10  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

149: TGG Health&Wellness DB(SM)_1976-2009/Jun W3
           800  ADENYLATE
         16523  KINASE
            69  ADENYLATE(W)KINASE
            38  ADK
            82  POLYPHOSPHATE
         16523  KINASE
             8  POLYPHOSPHATE(W)KINASE
            17  PPK
           241  PHOSPHOTRANSFERASE
          1086  DIPHOSPHATE
         16523  KINASE
            32  DIPHOSPHATE(W)KINASE
          2487  AMP
          4879  ATP
            82  POLYPHOSPHATE
         11510  PHOSPHATE
             1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

154: MEDLINE(R)_1990-2009/Jul 20
         18484  ADENYLATE
        256263  KINASE
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          1289  ADENYLATE(W)KINASE
           161  ADK
          1821  POLYPHOSPHATE
        256263  KINASE
           154  POLYPHOSPHATE(W)KINASE
           238  PPK
          3804  PHOSPHOTRANSFERASE
         28168  DIPHOSPHATE
        256263  KINASE
          1458  DIPHOSPHATE(W)KINASE
         59401  AMP
         85398  ATP
          1821  POLYPHOSPHATE
        106233  PHOSPHATE
            18  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

155: MEDLINE(R)_1950-2009/Jul 20
          35980  ADENYLATE
        297288  KINASE
          2545  ADENYLATE(W)KINASE
           200  ADK
          2573  POLYPHOSPHATE
        297288  KINASE
           171  POLYPHOSPHATE(W)KINASE
           267  PPK
          6181  PHOSPHOTRANSFERASE
         49507  DIPHOSPHATE
        297288  KINASE
          1654  DIPHOSPHATE(W)KINASE
        102536  AMP
        118852  ATP
          2573  POLYPHOSPHATE
        169926  PHOSPHATE
            25  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

156: ToxFile_1965-2009/Jul W3
          6841  ADENYLATE
         67811  KINASE
           292  ADENYLATE(W)KINASE
            34  ADK
           541  POLYPHOSPHATE
         67811  KINASE
            33  POLYPHOSPHATE(W)KINASE
            40  PPK
          1111  PHOSPHOTRANSFERASE
          9155  DIPHOSPHATE
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          67811  KINASE
            198  DIPHOSPHATE(W)KINASE
          19527  AMP
          22854  ATP
            541  POLYPHOSPHATE
          39141  PHOSPHATE
              2  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

159: Cancerlit_1975-2002/Oct
           4312  ADENYLATE
          61962  KINASE
            149  ADENYLATE(W)KINASE
             37  ADK
            232  POLYPHOSPHATE
          61962  KINASE
              1  POLYPHOSPHATE(W)KINASE
             21  PPK
            764  PHOSPHOTRANSFERASE
           4518  DIPHOSPHATE
          61962  KINASE
            277  DIPHOSPHATE(W)KINASE
          11808  ATP
            232  POLYPHOSPHATE
          15554  PHOSPHATE
          14528  AMP
              0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

162: Global Health_1983-2009/Jul W3
            797  ADENYLATE
           9876  KINASE
             92  ADENYLATE(W)KINASE
             23  ADK
            228  POLYPHOSPHATE
           9876  KINASE
              8  POLYPHOSPHATE(W)KINASE
             16  PPK
            277  PHOSPHOTRANSFERASE
           1306  DIPHOSPHATE
           9876  KINASE
             27  DIPHOSPHATE(W)KINASE
           6415  AMP
           4912  ATP
            228  POLYPHOSPHATE
          14888  PHOSPHATE
              1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
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                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

164: Allied & Complementary Medicine_1984-2009/Jul
             0  PPK
             1  POLYPHOSPHATE
           435  KINASE
             0  POLYPHOSPHATE(W)KINASE
            27  DIPHOSPHATE
           435  KINASE
             0  DIPHOSPHATE(W)KINASE
             9  ADENYLATE
           435  KINASE
             0  ADENYLATE(W)KINASE
             1  ADK
            41  AMP
           123  ATP
             1  POLYPHOSPHATE
           221  PHOSPHATE
             0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

172: EMBASE Alert_2009/Jul 21
           143  ADENYLATE
          7289  KINASE
            20  ADENYLATE(W)KINASE
             7  ADK
            42  POLYPHOSPHATE
          7289  KINASE
             3  POLYPHOSPHATE(W)KINASE
             6  PPK
            39  PHOSPHOTRANSFERASE
           274  DIPHOSPHATE
          7289  KINASE
            15  DIPHOSPHATE(W)KINASE
           569  AMP
          1787  ATP
            42  POLYPHOSPHATE
          2415  PHOSPHATE
             0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

266: FEDRIP_2009/May
             3  ADENYLATE
           112  KINASE
             0  ADENYLATE(W)KINASE
             0  ADK
             1  PPK
```

```
              4  POLYPHOSPHATE
            112  KINASE
              0  POLYPHOSPHATE(W)KINASE
              5  DIPHOSPHATE
            112  KINASE
              0  DIPHOSPHATE(W)KINASE
             12  AMP
             72  ATP
              4  POLYPHOSPHATE
            110  PHOSPHATE
              0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

369: New Scientist_1994-2009/Jul W2
              1  ADENYLATE
             47  KINASE
              1  ADENYLATE(W)KINASE
              0  ADK
              1  PPK
              2  POLYPHOSPHATE
             47  KINASE
              0  POLYPHOSPHATE(W)KINASE
              1  PHOSPHOTRANSFERASE
              9  DIPHOSPHATE
             47  KINASE
              0  DIPHOSPHATE(W)KINASE
             42  AMP
             81  ATP
              2  POLYPHOSPHATE
            181  PHOSPHATE
              0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

370: Science_1996-1999/Jul W3
             24  ADENYLATE
            681  KINASE
              3  ADENYLATE(W)KINASE
              1  ADK
              0  PPK
              7  POLYPHOSPHATE
            681  KINASE
              2  POLYPHOSPHATE(W)KINASE
             23  PHOSPHOTRANSFERASE
            116  DIPHOSPHATE
            681  KINASE
              0  DIPHOSPHATE(W)KINASE
            105  AMP
              7  POLYPHOSPHATE
```

```
          786  PHOSPHATE
          296  ATP
            0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

399: CA SEARCH(R)_1967-2009/UD=15104
        27328  ADENYLATE
       210467  KINASE
         1382  ADENYLATE(W)KINASE
          460  ADK
          152  PPK
        11112  POLYPHOSPHATE
       210467  KINASE
          196  POLYPHOSPHATE(W)KINASE
         3830  PHOSPHOTRANSFERASE
        13929  DIPHOSPHATE
       210467  KINASE
          809  DIPHOSPHATE(W)KINASE
        29196  AMP(ADENOSINE 5'-MONOPHOSPHATE)
        59309  ATP(ADENOSINE 5'-TRIPHOSPHATE)
        11112  POLYPHOSPHATE
       328993  PHOSPHATE
            9  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
        14639  ADENYLATE
        41267  KINASE
          468  ADENYLATE(W)KINASE
            8  ADK
            2  PPK
          826  POLYPHOSPHATE
        41267  KINASE
           12  POLYPHOSPHATE(W)KINASE
         1453  PHOSPHOTRANSFERASE
         2580  DIPHOSPHATE
        41267  KINASE
           60  DIPHOSPHATE(W)KINASE
        16708  AMP
        12484  ATP
          826  POLYPHOSPHATE
        35825  PHOSPHATE
            0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

444: New England Journal of Med._1985-2009/Jul W2
```

```
          144  ADENYLATE
         1681  KINASE
            1  ADENYLATE(W)KINASE
            4  ADK
            1  PPK
            1  POLYPHOSPHATE
         1681  KINASE
            0  POLYPHOSPHATE(W)KINASE
           14  PHOSPHOTRANSFERASE
          190  DIPHOSPHATE
         1681  KINASE
            3  DIPHOSPHATE(W)KINASE
          323  AMP
          354  ATP
            1  POLYPHOSPHATE
         1276  PHOSPHATE
            0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

457: The Lancet_1992-2009/Jul W2
            0  PPK
            3  POLYPHOSPHATE
         1214  KINASE
            0  POLYPHOSPHATE(W)KINASE
            5  PHOSPHOTRANSFERASE
           58  DIPHOSPHATE
         1214  KINASE
            0  DIPHOSPHATE(W)KINASE
           41  ADENYLATE
         1214  KINASE
            5  ADENYLATE(W)KINASE
            6  ADK
          125  AMP
          358  ATP
            3  POLYPHOSPHATE
          604  PHOSPHATE
            0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

467: ExtraMED(tm)_2000/Dec
            9  ADENYLATE
           47  KINASE
            0  ADENYLATE(W)KINASE
            0  ADK
            1  PHOSPHOTRANSFERASE
            8  DIPHOSPHATE
           47  KINASE
            0  DIPHOSPHATE(W)KINASE
```

```
             18  AMP
             36  ATP
            113  PHOSPHATE
              0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

TOTAL: FILES 5,34,35 and ...
         921345  ATP
         269730  ADENYLATE
        2705877  KINASE
          17163  ADENYLATE(W)KINASE
           2039  ADK
          36619  POLYPHOSPHATE
        2705877  KINASE
           1525  POLYPHOSPHATE(W)KINASE
           2247  PPK
          70514  PHOSPHOTRANSFERASE
         252752  DIPHOSPHATE
        2705877  KINASE
          11184  DIPHOSPHATE(W)KINASE
         702191  AMP
          36619  POLYPHOSPHATE
        1767826  PHOSPHATE
     S5     184  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

? s s5 and (fusion (w) protein)

Processing
Processing
Processing
Processing
Processing
  5: Biosis Previews(R)_1926-2009/Jul W2
              25  S5
          121382  FUSION
         1976373  PROTEIN
           29157  FUSION(W)PROTEIN
               2  S5 AND (FUSION (W) PROTEIN)

 34: SciSearch(R) Cited Ref Sci_1990-2009/Jul W2
              23  S5
          156516  FUSION
         1703496  PROTEIN
           26295  FUSION(W)PROTEIN
               3  S5 AND (FUSION (W) PROTEIN)

 35: Dissertation Abs Online_1861-2009/Jun
```

```
             1  S5
         12704  FUSION
         95405  PROTEIN
          1949  FUSION(W)PROTEIN
             0  S5 AND (FUSION (W) PROTEIN)

45: EMCare_2009/Jul W2
             1  S5
         10849  FUSION
        149653  PROTEIN
           559  FUSION(W)PROTEIN
             0  S5 AND (FUSION (W) PROTEIN)

65: Inside Conferences_1993-2009/Jul 21
             0  S5
         37126  FUSION
         44356  PROTEIN
           240  FUSION(W)PROTEIN
             0  S5 AND (FUSION (W) PROTEIN)

71: ELSEVIER BIOBASE_1994-2009/Jul W3
             9  S5
         51549  FUSION
        827723  PROTEIN
         15471  FUSION(W)PROTEIN
             2  S5 AND (FUSION (W) PROTEIN)

72: EMBASE_1993-2009/Jul 20
            26  S5
         74919  FUSION
       1583718  PROTEIN
         17903  FUSION(W)PROTEIN
             2  S5 AND (FUSION (W) PROTEIN)

73: EMBASE_1974-2009/Jul 20
            31  S5
         97861  FUSION
       1935703  PROTEIN
         20106  FUSION(W)PROTEIN
             2  S5 AND (FUSION (W) PROTEIN)

91: MANTIS(TM)_1880-2009/Mar
             0  S5
          4898  FUSION
          9626  PROTEIN
            39  FUSION(W)PROTEIN
             0  S5 AND (FUSION (W) PROTEIN)

98: General Sci Abs_1984-2009/Jul
             1  S5
          6224  FUSION
         89885  PROTEIN
```

```
          1015  FUSION(W)PROTEIN
             0  S5 AND (FUSION (W) PROTEIN)

135: NewsRx Weekly Reports_1995-2009/Jul W1
             1  S5
         15864  FUSION
        204000  PROTEIN
          4502  FUSION(W)PROTEIN
             1  S5 AND (FUSION (W) PROTEIN)

138: Physical Education Index_1990-2009/Jul
             0  S5
           105  FUSION
          2339  PROTEIN
             0  FUSION(W)PROTEIN
             0  S5 AND (FUSION (W) PROTEIN)

144: Pascal_1973-2009/Jul W3
            10  S5
        136596  FUSION
        677374  PROTEIN
          9102  FUSION(W)PROTEIN
             2  S5 AND (FUSION (W) PROTEIN)

149: TGG Health&Wellness DB(SM)_1976-2009/Jun W3
             1  S5
          8656  FUSION
        101263  PROTEIN
          1612  FUSION(W)PROTEIN
             0  S5 AND (FUSION (W) PROTEIN)

154: MEDLINE(R)_1990-2009/Jul 20
            18  S5
        145114  FUSION
       1588386  PROTEIN
         25189  FUSION(W)PROTEIN
             2  S5 AND (FUSION (W) PROTEIN)

155: MEDLINE(R)_1950-2009/Jul 20
            25  S5
        168402  FUSION
       1951071  PROTEIN
         26335  FUSION(W)PROTEIN
             2  S5 AND (FUSION (W) PROTEIN)

156: ToxFile_1965-2009/Jul W3
             2  S5
         28232  FUSION
        350736  PROTEIN
          4645  FUSION(W)PROTEIN
             0  S5 AND (FUSION (W) PROTEIN)
```

```
159: Cancerlit_1975-2002/Oct
               0  S5
           29715  FUSION
          292642  PROTEIN
            5385  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

162: Global Health_1983-2009/Jul W3
               1  S5
            5133  FUSION
          140555  PROTEIN
            1691  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

164: Allied & Complementary Medicine_1984-2009/Jul
               0  S5
             675  FUSION
            1528  PROTEIN
               4  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

172: EMBASE Alert_2009/Jul 21
               0  S5
            2271  FUSION
           30975  PROTEIN
             435  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

266: FEDRIP_2009/May
               0  S5
             227  FUSION
            1340  PROTEIN
              13  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

369: New Scientist_1994-2009/Jul W2
               0  S5
             485  FUSION
            2540  PROTEIN
               3  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

370: Science_1996-1999/Jul W3
               0  S5
             620  FUSION
            2329  PROTEIN
             241  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

399: CA SEARCH(R)_1967-2009/UD=15104
               9  S5
          186395  FUSION(SEE ?IGNOTE)
```

```
         1554652  PROTEIN
           17456  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
               0  S5
           22031  FUSION
          213976  PROTEIN
             462  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

444: New England Journal of Med._1985-2009/Jul W2
               0  S5
             572  FUSION
            6040  PROTEIN
             146  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

457: The Lancet_1992-2009/Jul W2
               0  S5
             601  FUSION
            5598  PROTEIN
             154  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

467: ExtraMED(tm)_2000/Dec
               0  S5
              66  FUSION
             670  PROTEIN
               3  FUSION(W)PROTEIN
               0  S5 AND (FUSION (W) PROTEIN)

TOTAL: FILES 5,34,35 and ...
             184  S5
         1325788  FUSION
        15543952  PROTEIN
          210112  FUSION(W)PROTEIN
      S6      18  S5 AND (FUSION (W) PROTEIN)

? ds

Set   File     Items   Description
        5         0
       34         0
       35         0
       45         0
       65         0
       71         0
       72         0
       73         0
       91         0
       98        16
```

```
      135          0
      138          0
      144          0
      149          2
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399        283
      434          0
      444          0
      457          0
      467          0
S1                301   AU='KURODA, AKIO'
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98         16
      135          0
      138          0
      144          0
      149          2
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399        249
      434          0
      444          0
      457          0
      467          0
S2                267   RD  (unique items)
        5          0
       34          0
```

```
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98          0
      135          0
      138          0
      144          0
      149          0
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399          1
      434          0
      444          0
      457          0
      467          0
S3                 1   S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND (-
                   (POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE -
                   OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE -
                   OR PHOSPHATE)
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98          0
      135          0
      138          0
      144          0
      149          0
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
```

```
      266          0
      369          0
      370          0
      399          0
      434          0
      444          0
      457          0
      467          0
S4                 0   S3 AND FUSION
        5         25
       34         23
       35          1
       45          1
       65          0
       71          9
       72         26
       73         31
       91          0
       98          1
      135          1
      138          0
      144         10
      149          1
      154         18
      155         25
      156          2
      159          0
      162          1
      164          0
      172          0
      266          0
      369          0
      370          0
      399          9
      434          0
      444          0
      457          0
      467          0
S5               184   ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND ((POLYPH-
                       OSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE OR (DIP-
                       HOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE OR PHOS-
                       PHATE)
        5          2
       34          3
       35          0
       45          0
       65          0
       71          2
       72          2
       73          2
       91          0
       98          0
```

```
       135          1
       138          0
       144          2
       149          0
       154          2
       155          2
       156          0
       159          0
       162          0
       164          0
       172          0
       266          0
       369          0
       370          0
       399          0
       434          0
       444          0
       457          0
       467          0
S6                 18   S5 AND (FUSION (W) PROTEIN)

? ds

Set    File     Items   Description
         5          0
        34          0
        35          0
        45          0
        65          0
        71          0
        72          0
        73          0
        91          0
        98         16
       135          0
       138          0
       144          0
       149          2
       154          0
       155          0
       156          0
       159          0
       162          0
       164          0
       172          0
       266          0
       369          0
       370          0
       399        283
       434          0
       444          0
       457          0
```

```
      467          0
S1                301   AU='KURODA, AKIO'
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98         16
      135          0
      138          0
      144          0
      149          2
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399        249
      434          0
      444          0
      457          0
      467          0
S2                267   RD  (unique items)
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98          0
      135          0
      138          0
      144          0
      149          0
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
```

```
      172          0
      266          0
      369          0
      370          0
      399          1
      434          0
      444          0
      457          0
      467          0
S3                 1   S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND (-
                       (POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE -
                       OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE -
                       OR PHOSPHATE)
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98          0
      135          0
      138          0
      144          0
      149          0
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399          0
      434          0
      444          0
      457          0
      467          0
S4                 0   S3 AND FUSION
        5         25
       34         23
       35          1
       45          1
       65          0
       71          9
       72         26
       73         31
       91          0
```

	98	1
	135	1
	138	0
	144	10
	149	1
	154	18
	155	25
	156	2
	159	0
	162	1
	164	0
	172	0
	266	0
	369	0
	370	0
	399	9
	434	0
	444	0
	457	0
	467	0
S5		184 ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND ((POLYPH-OSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE OR (DIP-HOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE OR PHOS-PHATE)
	5	2
	34	3
	35	0
	45	0
	65	0
	71	2
	72	2
	73	2
	91	0
	98	0
	135	1
	138	0
	144	2
	149	0
	154	2
	155	2
	156	0
	159	0
	162	0
	164	0
	172	0
	266	0
	369	0
	370	0
	399	0
	434	0
	444	0
	457	0

```
      467          0
S6                 18   S5 AND (FUSION (W) PROTEIN)

? rd

      S7       5  RD  (unique items)

? t s7/k/all

>>> KWIC option is not available in file(s): 3997/K/1 (Item 1 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)
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ATP amplification for ultrasensitive bioluminescence assay: Detection of a single
bacterial cell


Abstract: We developed an ultrasensitive bioluminescence assay of ATP by employing
(i) adenylate kinase (ADK) for converting AMP + ATP to two molecules of ADP, (ii)
polyphosphate (polyP) kinase (PPK) for converting ADP back to ATP ( ATP
amplification), and (iii) a commercially available firefly luciferase. A highly
purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels
of bioluminescence in the firefly luciferase reaction. The present method, which was
approximately 10,000-fold more sensitive to ATP than the conventional
bioluminescence assay, allowed us to detect bacterial contamination as low as one
colony-forming unit (CFU) of Escherichia coli per assay.
Registry Numbers: ...AMP; ... ...AMP; ... ...AMP; ... ...AMP; ... ...AMP; ... ...
AMP; ... ...AMP; ... ...AMP; ... ...ATP; ... ...ATP; ... ...ATP; ... ...ATP
Enzyme Commission Number:
DESCRIPTORS:
 Chemicals & Biochemicals:   ...AMP; ATP--... ...polyphosphate;


7/K/2 (Item 2 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)
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Nucleoside diphosphate kinase-like activity in adenylate kinase of Mycobacterium
tuberculosis.


Abstract: Ak (adenylate kinase) is a ubiquitous enzyme that catalyses a reversible
high-energy phosphoryl-transfer reaction between ATP and AMP to form ADP. In the
present study, the Ak gene (adk) of Mycobacterium tuberculosis was cloned, expressed
in Escherichia coli and purified as a glutathione S-transferase fusion protein.
Purified Ak converted AMP into ADP in the presence of (gamma-32P) ATP or (gamma-32P)
GTP. Replacement of arginine-88 of adk with glycine resulted in the loss of enzymic
activity. The purified protein also showed Ndk (nucleoside diphosphate kinase)-like
activity as it transferred terminal phosphate from (gamma-32P)ATP to all nucleoside
diphosphates, converting them into corresponding triphosphates. However, Ndk-like
activity of Ak was not observed with (gamma-32P)GTP. Immunoblot analysis of various
cellular fractions of M. tuberculosis H37Rv revealed that Ak is a cytoplasmic
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protein. The dual activity of Ak as both nucleoside mono- and di-phosphate kinases suggested that this enzyme may have a role in RNA and DNA biosynthesis in addition to its role in intracellular nucleotide metabolism.
Registry Numbers: ...AMP; ... ...AMP; ... ...AMP; ... ...AMP; ... ...AMP; ... ... AMP; ... ...AMP; ... ...AMP; ... ...ATP; ... ...ATP; ... ...ATP; ... ...ATP; ... ... adenylate kinase; ... ...nucleoside diphosphate kinase
Enzyme Commission Number: ...adenylate kinase; ... ...nucleoside diphosphate kinase
DESCRIPTORS:
Chemicals & Biochemicals: ...AMP; ATP; ... ...adenylate kinase--... ...nucleoside diphosphate kinase--
Gene Name: Mycobacterium tuberculosis adk gene (Mycobacteriaceae)
Methods & Equipment:

7/K/3 (Item 1 from file: 34)
DIALOG(R)File 34: SciSearch(R) Cited Ref Sci

Identification of a novel human adenylate kinase - cDNA cloning, expression analysis, chromosome localization and characterization of the recombinant protein

Abstract: ...the human adenylate kinases and to UMP/CMP kinase of several species. The enzyme was expressed in Escherichia coli and shown to catalyse phosphorylation of AMP and dAMP with ATP as phosphate donor. When GTP was used as phosphate donor, the enzyme phosphorylated AMP, CMP, and to a small extent dCMP. Expression as a fusion protein with the green fluorescent protein showed that the enzyme is located in the cytosol. Northern blot analysis with mRNA from eight different human tissues demonstrated... ...to chromosome 1p31. Based on the substrate specificity and the sequence similarity with the previously identified human adenylate kinases, we have named this novel enzyme adenylate kinase 5.
Identifiers-- ...GTP-AMP PHOSPHOTRANSFERASE; RADIATION HYBRID MAP; HUMAN GENOME; BEEF-HEART; GENE; FAMILY; BRAIN; LOCI; DEFICIENCY; YEAST

7/K/4 (Item 1 from file: 72)
DIALOG(R)File 72: EMBASE

Adenylate kinase as a virulence factor of pseudomonas aeruginosa

Adenylate kinase (AK; ATP:AMP phosphotransferase, EC 2.7.4.3) is a ubiquitous enzyme that contributes to the homeostasis of adenine nucleotides in eukaryotic and prokaryotic cells. AK catalyzes the reversible reaction Mg . ATP + AMP (left right arrow) Mg . ADP + ADP. In this study we show that AK secreted by the pathogenic strains of Pseudomonas aeruginosa appears to play an... ...death. We purified and characterized AK from the growth medium of a cystic fibrosis isolate strain of P. aeruginosa 8821 and hyperproduced it as a fusion protein with glutathione S-transferase. We demonstrated enhanced macrophage cell death in the presence of both the secreted and recombinant purified AK and its substrates AMP plus ATP or ADP. These data suggested that AK converts its substrates to a mixture of AMP, ADP, and ATP, which are potentially more cytotoxic than ATP alone. In addition, we observed

increased macrophage killing in the presence of AK and ATP alone. Since the presence of ATPase activity on the macrophages was confirmed in the present work, external macrophage-effluxed ATP is converted to ADP, which in turn can be transformed by AK into a cytotoxic mixture of three adenine nucleotides. Evidence is presented in this... ...P. aeruginosa. Thus, the possible role of secreted AK as a virulence factor is in producing and keeping an intact pool of toxic mixtures of AMP, ADP, and ATP, which allows P. aeruginosa to exert its full virulence.
Drug Descriptors:
* adenylate kinase--endogenous compound--ec; *virulence factor --endogenous compound--ec
adenosine diphosphate--drug toxicity--to; adenosine phosphate--drug toxicity--to; adenosine triphosphate--drug toxicity--to; glutathione transferase; recombinant enzyme
Medical Descriptors:
CAS Registry Number: ...8063-98-7 (adenosine phosphate); 15237-44-2... ...987-65-5 (adenosine triphosphate); 9013-02-9 (adenylate kinase); 50812-37-8 (glutathione transferase)
SECTION HEADINGS:

7/K/5 (Item 1 from file: 135)
DIALOG(R)File 135: NewsRx Weekly Reports

TEXT:
ATP amplification for ultrasensitive bioluminescence assay has been used to detect a single bacterial cell.

According to a study by researchers at Hiroshima University, "We developed an ultrasensitive bioluminescence assay of ATP by employing. (1) Adenylate kinase (ADK) for converting AMP + ATP to two molecules of ADP,

(2) Polyphosphate kinase (PPK) for converting ADP back to ATP (ATP amplification), and

(3) A commercially available firefly luciferase."

"A highly purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels of bioluminescence in the firefly luciferase reaction," wrote T. Satoh and colleagues.

The researchers concluded, "The present method, which was approximately 10,000-fold more sensitive to ATP than the conventional bioluminescence assay, allowed us to detect bacterial contamination as low as one colony-forming unit of Escherichia coli per assay."

Satoh and colleagues published their study in Bioscience Biotechnology and Biochemistry (ATP amplification for ultrasensitive bioluminescence assay: Detection of a single bacterial cell. Biosci Biotechnol Biochem, 2004;68(6):1216-1220).

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